REMARKS/ARGUMENTS

This application has been carefully reviewed in light of the Office Action dated March 30, 2005. Claims 1-25 are pending in this application. Claims 1-2, 12, and 20 are the independent claims. Claims 2-25 are added. It is believed that no new matter is involved in the amendments or arguments presented herein. Reconsideration and entrance of the amendment in the application are respectfully requested.

Art-Based Rejections

Claim 1 was rejected under 35 USC §103(a) over USPN 6,674,098 B1 (Niki) in view of USPAPN 2002/0105279 A1 (Kimura). Applicant respectfully traverses this rejection and submits that the claims herein are patentable in light of the arguments below.

The Niki Reference

Niki is directed to a semiconductor layer lamination 11 having a contact layer 3 made of Ga-doped n-type ZnO, an n-type clad layer 4 made of Ga-doped MgZnO, an active layer 5 made of CdZnO, a p-type clad layer 6 formed of MgZnO to which Ga and N are doped simultaneously, and a p-type contact layer 7 made of ZnO to which Ga and N are doped simultaneously, in this order. To diffuse current, a transparent electrode 8 made of an indium-oxide-tin (ITO) film is formed on the semiconductor layer lamination 11. *(See, Niki, FIG. 1 and Col. 9, lines 20-52).*

The Kimura Reference

Kimura is directed to light emitting devices with an organic light emitting layer. *(See, Kimura, Page 1, paragraph [0011]).* Kimura forms pixel electrodes with an indium-oxide-tin (ITO) film as a transparent electrode. *(See, Kimura, Page 18,*

paragraph [0300]). Kimura also forms a cathode with an MgAg electrode film. *(See, Kimura, Page 19, paragraph [0306]).*

The Claims are Patentable Over the Cited References

The present application is generally directed to light emitting devices having transparent electrodes that inhibit degradation.

As defined by independent Claim 1, a transparent electrode is made up of ZnO as its main material, and its surface is covered with a Mg-doped ZnO film.

The applied references do not disclose or suggest the above features of the present invention as defined by independent Claim 1. In particular, the applied references do not disclose or suggest, "a transparent electrode made up of ZnO as its main material, wherein its surface is covered with a Mg-doped ZnO film," as required by independent Claim 1.

Niki specifically discloses, in FIG. 1, a semiconductor layer lamination 11 having a contact layer 3 made of Ga-doped n-type ZnO, an n-type clad layer 4 made of Ga-doped MgZnO, an active layer 5 made of CdZnO, a p-type clad layer 6 formed of MgZnO to which Ga and N are doped simultaneously, and a p-type contact layer 7 made of ZnO to which Ga and N are doped simultaneously, in this order. To diffuse current, a transparent electrode 8 made of an indium-oxide-tin (ITO) film is formed on the semiconductor layer lamination 11. A p-side electrode 10 made of Ni/Al or Ni/Au layers is formed on electrode 8. An n-side electrode 9 made of Ti/Al or Ti/Au layers is formed on the back side surface of silicon substrate 1. *(See, Niki, Col. 9, lines 20-52).*

The Office Action concedes that Niki does not disclose that the transparent electrode is formed of ZnO as its main material. The Applicant agrees. The Office Action purports that Kimura discloses, in paragraph [0101], a transparent electrode layer having ZnO as its main material to be equivalent with an ITO transparent

electrode layer. However, after further review, Kimura does not disclose this subject matter in paragraph [0101] as stated by the Office Action. Instead, in paragraphs [0300] and [0324], Kimura specifically discloses that pixel electrode 947 is formed by using an indium oxide-tin (ITO) film as a transparent electrode or a transparent conductive film obtained by mixing 2 to 20% of a zinc oxide (ZnO) into indium oxide. Accordingly, Kimura suggests that a transparent conductive film can be obtained by mixing 2 to 20% of a zinc oxide (ZnO) into indium oxide. Therefore, according to Kimura, the main ingredient of the transparent conductive film is indium oxide and not ZnO, which is only 2 to 20% of the whole. Moreover, Kimura does not disclose or even suggest that the surface of the transparent electrode or transparent conductive film is covered by a Mg-doped ZnO film as required by the claims of the present invention.

In contrast to Niki, Kimura, or any combination thereof, the present invention discloses, in FIG. 2, that transparent electrode 12 is made of ZnO as its main material, and the surface of the ZnO transparent electrode 12 is covered with an Mg-doped ZnO film 11. In one aspect, the transparent electrode provides increased acid resistance and prevents degradation of reliability due to ion-containing moistures. *(See specification, page 3, line 2 to page 4, line 1 and page 5, line 11 to page 8, line 21).* Niki, Kimura, or any combination thereof do not disclose or even suggest this feature of the present invention.

Therefore, since the applied references do not disclose or even suggest the above features of the present invention as required by independent Claim 1, those references cannot be said to anticipate nor render obvious the invention which is the subject matter of independent Claim 1.

Accordingly, independent Claim 1, as originally filed, is believed to be in condition for allowance and such allowance is respectfully requested.

New Claims 2-25 recite additional features of the invention which are neither disclosed nor fairly suggested by the applied references. Thus, new Claims 2-25 are also believed to be in condition for allowance and such allowance is respectfully requested.

Conclusion

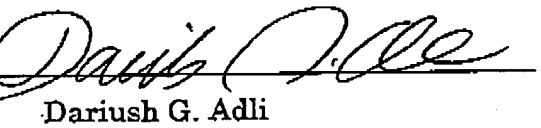
In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6809 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: August 26, 2005

By 
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